



U.S. Coast Guard (Kyle Nien)

Flooding in New Orleans after Hurricane Katrina

# Applying Lessons of Hurricane Katrina

In the early morning of August 29, 2005, the eye of Hurricane Katrina reached the coasts of Louisiana and Mississippi. While the winds at landfall were assessed as only Category 3, the span of destruction and accompanying storm surge reflected the hurricane's earlier Category 5 strength. Tropical storm-force winds and rain extended as far east as the Florida panhandle. A wall of water swamped coastal areas, causing the levees protecting New Orleans to break. Communications were disrupted by failed circuits and cellular towers, as well as by the loss of electrical power throughout southern Louisiana. Regional emergency operations centers became isolated, and some were completely disabled. Unable to offer assistance to others, many emergency responders became disaster victims themselves.

By GREGORY A.S. GECOWETS

and JEFFERSON P. MARQUIS

One of several messages left on roofs of homes shortly after rescue operations began in New Orleans



1st Combat Camera Squadron (Mike Boyce)

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The damage caused by Hurricane Katrina and the levee breaks in New Orleans presented the Nation with a catastrophe that it was not prepared for. Responders were overwhelmed. Local, state, and Federal authorities did not understand what was happening and thus did not initially share critical information, quickly organize the response effort, take needed initiative, or work effectively with the media to get the facts to the people.

The private sector, nongovernmental organizations, and government at all levels have taken corrective actions as a result of Katrina. Response capabilities for a future event of that scale have thus improved, but public expectations may be difficult to meet. The gap between public needs and available resources may not always be completely closed. While the onus for an effective response falls on local and state governments as well as civilian Federal agencies, Active duty and Reserve forces provide a powerful capability and will remain a key part of the national effort.

This article provides a framework for analyzing incident management and highlights challenges that affect the level of unmet requirements in a catastrophe. Based on the findings of two studies conducted for the U.S. Joint Forces Command (USJFCOM) by the Joint Center for Operational Analysis (JCOA) in 2005–2006, the focus is on response time-frames and activities instead of longer-term recovery and restoration. Furthermore, the article presents a broad brush appraisal of national response capabilities more than 2 years after Katrina. It is not intended as a comprehensive report card of post-Katrina corrective actions.

### **Response to Katrina**

Two ways of characterizing incidents are time and space. In terms of time, a triggering event may come with warning (hurricane) or without warning (chemical leak). Its duration may be finite (earthquake) or open-ended (pandemic). Similarly, an event can occur in a specific place (terrorist attack on a landmark) or propagate beyond a defined boundary (malicious computer code). In the case of Katrina, national weather forecasters accurately predicted the timing, location, and intensity of the storm prior to its landfall

and urgently communicated their findings to government officials and the general public (a “warned” event).

In one of the largest and most successful evacuations in U.S. history, many gulf coast residents heeded official orders to vacate their homes and travel outside the path of the storm. Local, state, and Federal agencies took steps to prepare for the expected disaster, prepositioning resources and alerting responders. Incident managers took advantage of pre-storm connectivity to coordinate via email, teleconference, and video conference. However, government officials at all levels were unprepared for the consequences of the New Orleans levee breaks. The breaks inundated 80 percent of the city with floodwater, incapacitated first responders, and stranded the 20 percent of residents who had not evacuated. The breaks pushed the status of Katrina from a bad storm to a catastrophic incident. Immediate requirements for life-sustaining capabilities quickly outstripped available resources, creating a gap of unfulfilled need.

Several challenges contributed to growth of the gap and inhibited rapid response. Most significant was that policy and law placed the Federal Government largely in a supplemental (pull system) role for natural disasters. Federal law (the Constitution, Stafford Act, and Insurrection Act) put state leadership at the center of incident management and tied Federal response to specific state requests. The overall relief effort was framed by the National Response Plan (NRP), which called for a sequential reaction: local, then state, then Federal. Department of Defense (DOD) policy regarding defense support of civil authorities (DSCA) had been to provide assistance “to Federal, state and local responders only when civilian capacities become overwhelmed.”<sup>1</sup> Additionally, the traditional reliance of disaster professionals on local knowledge and on-scene management—reinforced by years of successful response to noncatastrophic natural disasters—contributed to a culture of “wait until asked.” In other words, state and Federal officials were reluctant to anticipate the needs of local responders. Other elements that interfered with a rapid effective response included the following.

*Situational Awareness.* Poor situational awareness resulted largely from reliance on

first responders and electronic connectivity for information. The loss of infrastructure and the lack of interoperable systems inhibited communications between surviving responders and incident managers. As a result, government officials were initially unable to piece together a comprehensive understanding of conditions in New Orleans immediately following the levee breaks.

*Immediate Response Authority.* According to the NRP, only local chief executives or state Governors could request higher level assistance when their own “capabilities have been exceeded or exhausted.”<sup>2</sup> Furthermore, among Federal agencies, DOD was dubbed the “heavy lifter of last resort” with respect to domestic disasters. President George W. Bush requested then-Secretary of Defense Donald Rumsfeld to “lean forward” in preparing to provide assistance to the gulf region, but it was a week before DOD was able to put a significant number of boots on the ground.

*Unity of Effort.* The extent of devastation made it difficult to achieve unity of effort. Each affected state dealt with its own Federal Coordinating Officer (FCO) appointed by the Director of the Federal Emergency Management Agency (FEMA), on behalf of the President, to coordinate Federal assistance during a disaster or emergency. Under the NRP, a Principal Federal Official (PFO) could be assigned to an incident of national significance to serve as the local representative of the Secretary of the Department of Homeland Security (DHS) and to assist with efforts to coordinate Federal response assets. Since the PFO had no authority over the FCOs or any other element in the Joint Field Office (JFO),<sup>3</sup> misaligned effort between states had to be resolved in Washington. National Guard forces reported to the individual Governors via the state adjutants general (state Active duty, later in Title 32 U.S.C. status). Federal military forces (Title 10 U.S.C.) reported to Lieutenant General Russel Honoré, USA, commanding general of Joint Task Force Katrina. This resulted in parallel, independent military chains of command.

*Incident and Resource Management.* The National Incident Management System had not been fully implemented before Hurricane Katrina, complicating the response. Only 2 of 23 supporting plans were finalized, and there were no national standards specifying responder qualifications, certifications, and credentials. Many key managerial positions within the JFO in Baton Rouge, Louisiana, were manned by personnel who were not

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yet trained in the procedures of the Incident Command System, a fundamental component of the National Incident Management System. Within the military, standard processes for requesting and deploying forces did not keep pace with the demands.

**Homeland Security Exercises.** National exercise programs did not adequately prepare Federal, state, and local agencies for a catastrophic natural disaster. From May 2000 to April 2005, only three Top Official exercises were conducted, and all featured terrorist-related scenarios. Although these exercises had many participants, the training audience was limited to personnel from six states, none of which was affected by Hurricane Katrina, and few officials at the secretary or under secretary level participated.

**Public Communications.** With the exception of National Hurricane Center warnings prior to landfall, public communications failed to inform, guide, or assure the American public during the early stages of the catastrophe. No single trusted and knowledgeable spokesman quickly emerged as did the mayor of New York City during the 9/11 crisis. Additionally, the lack of a national communications strategy contributed to the government's inability to shape the information environment. As a result, the media sometimes provided inaccurate and misleading accounts of unfolding events, hindering relief efforts.

### Gap of Pain

Hurricane Katrina triggered the first full-scale activation of the NRP, which was designed to cope with incidents of national significance. The plan codified a sequential

approach that had proven effective for non-catastrophic events, such as forest fires and most hurricanes. However, this model proved totally inadequate for a disaster on the scale of Katrina. Although the national response to the hurricane was the largest of its kind in U.S. history, the delay of several days in providing large-scale assistance to New Orleans—and the initial absence of a unified strategy for dealing with the disaster—contributed to the suffering of the people remaining in the city and caused anguish throughout the country.

*the media sometimes provided inaccurate and misleading accounts of unfolding events, hindering relief efforts*

The sequential nature of catastrophic incident response is shown in the figure below. Individual communities have local and first responder capabilities in the form of police, fire, medical, and emergency management workers typically manned and funded to deal with the events of daily life. When a catastrophic event occurs, the effort required of these first responders skyrockets. At the same time, responders may become victims themselves or lose their ability to assist the public. Moreover, it may take time for state agencies to fully grasp the magnitude of the disaster, begin to allocate their own resources, and request help from the Federal Government or from other states through assistance compacts. Finally, when resources are identified outside the disaster area, it takes time to deploy and integrate them into the overall response.

The result is that some needs go unfulfilled for a time. This period is best described as a “gap of pain,” as shown in figure 1. In the context of Hurricane Katrina, this included victims sitting on rooftops awaiting rescue, hospitals unable to provide basic medical services, and civil disorder in the form of extensive looting and other crimes of opportunity.

This gap of pain may last hours or days depending on several factors:

- type of catastrophe
- extent of pre-event warnings and preparations
- actions of an affected populace
- willingness and ability of government agencies to deploy resources in advance of an event.

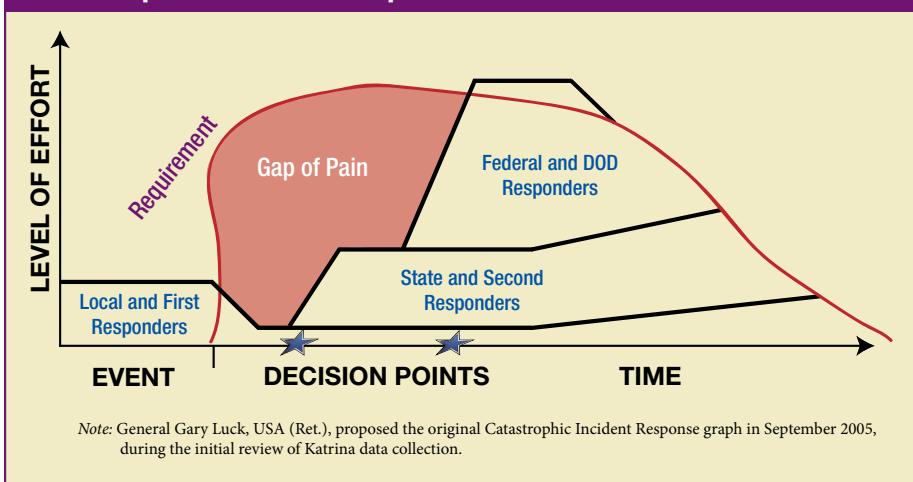
The gap is also affected by the capability of local and state officials to understand the situation in their area and request resources to respond to the catastrophic incident. The capability of government officials to understand the situation can be greatly affected when the communication infrastructure suffers extensive damage, as was the case following Katrina. Ideally, response challenges can be mitigated, unfulfilled needs met, and the gap of pain reduced in size and time.

There are three basic approaches to closing the gap. State and Federal officials can accelerate the timing of requests for assistance (RFA) and requests for forces (RFF) by enabling earlier decisions and improving decision processes. Response agencies can alter capabilities by posturing more resources or by moving existing resources more quickly. Finally, the U.S. Government and public can change the shape of the response gap by decreasing the need for external assistance through better preparation and early intervention.

### Recent Reforms

Reforms to national plans and capabilities have been initiated by local, state, and Federal governments, as well as within the private sector and by nongovernmental organizations. These improvements reflect all three approaches to closing the gap. This section summarizes the reforms enacted in 2005 and 2006, focusing on actions taken by the Federal Government. Again, these examples are illustrative and not intended as a comprehensive report card of post-Katrina corrective actions. Discussing these changes

### Catastrophic Incident Response



within the Catastrophic Incident Response framework will demonstrate how they can be used to reduce the gap in both a *warned* and an *unwarned* scenario.

**Disaster Framework.** National incident management and command and control structures are fundamentally unchanged since Katrina. In most cases, Governors must still request Federal assistance before it can be provided. Additionally, these national structures continue to rely on interagency and intergovernmental coordination to manage response activities at the regional and national levels; incident command is only used for on-scene emergency management.

With respect to military organization, unity of command is still unlikely unless the President invokes Chapter 15 of Title 10 (Insurrection Act). The National Guard has continued reorganization into state joint force headquarters, and the National Guard Bureau has trained "dual status" Title 10/32 (Federal/state) commanders. However, this concept of operations has never been implemented in a disaster response, and Governors remain reluctant to cede control of National Guard forces to Federal command.

**Effect on the gap:** none. This continues to be an issue in interagency reform discussions.

**Triggers for Response.** The NRP's catastrophic incident guidance and FEMA's pre-landfall policy for major hurricanes have been clarified. The Catastrophic Incident Annex was primarily designed to address catastrophic events involving little or no warning, such as chemical, biological, radiological, nuclear, or high-yield explosive (CBRNE) weapons of mass destruction or large magnitude earthquakes. The annex was modified in May 2006 to encompass other incidents projected to have catastrophic implications (for example, a major hurricane). This change permitted the Federal Government to proactively respond to warned catastrophes by predeploying tailored packages and resources. This early execution policy saw its first use in August 2007 as Hurricane Dean briefly threatened to make landfall along the Texas coast as a Category 5 storm.

In addition, in June 2006, FEMA issued interim policy guidance for major hurricanes. It clarified the circumstances under which a state would be considered for a Presidential emergency declaration prior to landfall.<sup>4</sup> In effect, this allows initiation of a Stafford Act/NRP-based response before a triggering event

occurs. There are financial and opportunity costs associated with such a decision, so it is not to be taken lightly.

**Effect on the gap: warned scenario—accelerate decisions; unwarned scenario—not applicable.** Given warning, these changes provide for expanded use of existing plans and allow incident decisions to be made prior to an event while connectivity is still robust.

**Authorities.** The response authorities of the Principal Federal Official and regional combatant commanders have been enhanced since Katrina. According to the Stafford Act, the Federal Coordinating Officer is primarily responsible for managing and coordinating Federal resource support activities during disasters and emergencies. As noted above, a PFO had no authority over Federal, state, or local partners and could not direct FCOs. As a result of the perceived weakness of the PFO role during the initial stage of the Katrina response, the NRP was changed to allow the DHS secretary to combine the roles of the PFO and FCO, except in terrorism cases.<sup>5</sup>

To improve the timeliness of DOD support, the Secretary of Defense has pre-approved a set of actions that a combatant commander may take to initiate a response. This all-hazards-based execution order

### *Governors remain reluctant to cede control of National Guard forces to Federal command*

permits the deployment and use of certain assets for up to 20 days at a combatant commander's direction (for example, identifying staging bases or moving defense coordinating officers to forward locations). It also grants authority to place a larger number of assets in a prepare-to-deploy order status for up to 7 days. Actual use of forces placed on this status requires notification of the Secretary of Defense.<sup>6</sup>

**Effect on the gap: warned and unwarned scenario—move up decision points, shorten decision processes, provide resources faster.** Both of these actions move decision points closer to a triggering event. The DSCA execution order also identifies a set of capabilities that can be preplanned for more rapid deployment/employment. This execution order was used in August 2007 in anticipation of Hurricane Dean's landfall in Texas. As a result, helicopter, communications, and public affairs resources were prepared to deploy within 24 hours of notification.

**Situational Awareness.** The Federal Government has taken a number of steps since Katrina to improve its Incident Awareness and Assessment (IAA) capabilities. DOD and DHS have established new IAA collection management organizations and concepts of operation. Aerial surveys are being undertaken to establish a pre-event baseline of hurricane-prone coastal areas, and IAA collection assets, belonging to the Air Force and Civil Air Patrol, have been predesignated for disaster response missions.

**Army trucks offload from Air Force C-5 at Hulman Field during exercise Ardent Sentry**



181<sup>st</sup> Fighter Wing (John S. Chapman)

At ground level, newly created DHS Situational Awareness Teams and U.S. Army North scouts should provide Federal officials with an early understanding of local disaster needs and capabilities. Other measures have been taken (such as the signing of a Standing Proper Use Memorandum for national and commercial imagery) to ensure that IAA information is distributed to proper response agencies.

**Effect on the gap:** warned and unwarned scenario—moves up decision points through more complete situational awareness. Changes provide baseline data for change detection and a means for collection and dissemination.

**Coordination and Communications.** Disaster coordination structures and communications capabilities have improved to some extent, although interoperability continues to be a challenge. A 2006 change to the NRP allowed multiple Joint Field Offices to be established in the event of a multistate disaster, with one of the JFOs coordinating the overall incident management effort. Another revision to the NRP called for the DOD joint task force headquarters to collocate with the JFO whenever possible.<sup>7</sup> Additionally, DHS assigned five teams (27 officials) to coordinate the Federal Government's role in preparing for, and responding to, major natural disasters during the 2006 hurricane season. For its part, DOD assigned a full-time Defense Coordinating Official and Defense Coordinating Element to each FEMA regional headquarters to assist with planning and logistics movement.

To improve communications and information-sharing, representatives from DHS, DOD, and the private sector have been cooperating on connectivity restoration. One long-term goal is to create a public/private structure for communications reconstitution similar to the Civil Reserve Airlift Fleet. In the meantime, FEMA and U.S. Northern Command have established standardized flyaway communications packages for disaster response elements.

**Effect on the gap:** warned and unwarned scenario—better regional coordination and communications can be expected to hasten the delivery of response capabilities.

**Resources.** In 2006, DHS and DOD made a concerted effort to increase the availability of disaster commodities and improve logistics planning and procedures. According to FEMA, the available quantity of meals-ready-to-eat (MREs) has increased four-fold

over those on hand prior to Katrina (enough to feed 1 million people for 1 week). DOD helped FEMA to draft a logistics concept of operations, deployed logistics specialists to hurricane regions, and readied its depot infrastructure for the supply, storage, and distribution of Federal relief assets.

To speed the approval process for commonly requested support (for example, helicopters, communications packages, staging bases), generic FEMA mission assignments have been drafted and costs estimated in advance. This concept of pre-scripted mission assignments has expanded beyond DOD-centric capabilities. These assignments are now in place for several of the NRP emergency support functions—the organizational structures that consolidate multiple agencies performing similar functions into a single unit under the auspices of the JFO. Upon identification of local need, the JFO simply fills in incident-specific information and submits the request for sourcing to the Defense Coordinating Officer in the case of DOD requests for assistance.

Approximately 25,000 Active duty forces were made available for hurricane response operations in 2006, including four FEMA support packages (provided by U.S. Joint Forces Command) that could be put on a weeklong prepare-to-deploy order.<sup>8</sup> The National Guard spent \$900 million on new communications and transportation equipment. It also borrowed \$500 million worth of equipment from the Active duty military to restock its units for civil support missions. The Guard shifted thousands of trucks, Humvees, and other supplies to states where storms were considered more likely to strike. Increased supplies can present challenges as well. For example, as many as 6 million MREs stockpiled near potential hurricane victims in 2006 reportedly spoiled because of a shortage of warehouse and refrigeration space, and FEMA had to dispose of thousands of pounds of ice.<sup>9</sup>

**Effect on the gap:** warned and unwarned scenario—raises level of state and Federal capabilities available for use in a response.

**Preparedness.** The devastation caused by Hurricane Katrina increased awareness of the need for improved disaster preparedness in general and hurricane preparedness in particular. DHS conducted an assessment of catastrophic plans with 131 states and urban areas (to include focus on the Nation's 75 largest urban areas).<sup>10</sup> Federal, state, and

local officials worked to plug holes in gulf state hurricane plans. Using Louisiana as an example, the Federal Government prepared to help move up to 80,000 people by bus and 61,000 by plane or train—almost everyone in the region without cars, including tourists. In addition, DOD provided contracting and logistics planning support to FEMA. This included contracts with suppliers to deliver diesel fuel and gasoline for generators and vehicles along hurricane escape routes.<sup>11</sup>

Disaster response exercises conducted by Federal, state, and local governments in 2006 fostered collaboration among responder organizations. These included Ardent Sentry 06/Positive Response 06–2, sponsored by U.S. Northern Command and the Joint Staff, which were aligned with Arizona and Michigan state exercises, and the DHS Hurricane Preparedness Tabletops, involving 5 FEMA regions, approximately 20 states, and numerous state, Federal, military, and private participants. A common theme in all these exercises was the need for a coherent public communications strategy that fostered citizen

*FEMA and U.S. Northern Command have established standardized flyaway communications packages for disaster response elements*



Coast Guard rescue swimmer prepares elderly couple for transport to safety

awareness *prior* to a major incident and filled the information void as early as possible after the event.

**Effect on the gap:** warned scenario—change the requirement; unwarned scenario—no major effect. Significant focus on hurricane preparedness did not enable major planning and education campaigns in other areas of the country. However, the DHS 2007 Spills of National Significance exercise is aligned with the New Madrid Seismic Zone through the Midwestern states and should assist in this area.

**Legislative Change.** The National Defense Authorization Act for fiscal year 2007 contained a revision to the Insurrection Act that could have major consequences for the national response to catastrophic events. These changes provide explicit Presidential authority to deploy Federal armed forces, including federalized National Guardsmen, in response to a Katrina-like catastrophe. This may be done without a Governor's consent if the President determines that "domestic violence has occurred to such an extent that the constituted authorities of the State or possession are incapable of maintaining public order."<sup>12</sup> The law seems to strengthen the Federal Government's power to direct the national response in certain catastrophic situations. If invoked, it could serve to align the total military response under one Active duty

commander, achieving unity of command and contributing to the government's overall unity of effort.

However, at the time of the writing of this article, efforts were under way in Congress to repeal the revision to the Insurrection Act and to return the situation to the status quo ante—with the strong support of most of the state Governors and National Guard adjutants general.<sup>13</sup>

**Effect on the gap:** to be determined. This defines an additional situation that allows direct Federal intervention without a state request (altering the state-to-Federal decision point). But follow-on policy, planning, and training are not yet available to analyze the potential use of this authority.

The Nation has made significant strides throughout 2006 in preparing to respond to a major warned event. The gap of pain should be substantially less than it was during the Katrina response. However, the country's ability to respond to an unwarned disaster is less clear. Many of the improvements would apply to an unwarned event, but several factors complicate response to such a catastrophe. Response capabilities could not be put in motion prior to an event. Loss of connectivity and infrastructure still inhibit local and state government awareness and ability to communicate needs to external providers. While the 2006 focus on hurricane preparedness

likely decreased post-incident requirements on the gulf and east coasts, it has done little to improve civil preparedness throughout the rest of the country. Thus, the gap of pain would probably be greater for a major event without warning, such as an earthquake or a large-scale CBRNE incident.

### Continuing Issues

Although the Nation's domestic response capabilities have improved, several issues need to be addressed before the United States can be confident that it is adequately prepared for the full range of potential major disasters.

**Sustaining Preparedness.** Reforms must be institutionalized within the disaster response community. Simply writing changes into a plan is not sufficient; changes must be trained and exercised to verify achievability. Furthermore, it is uncertain whether the high level of national disaster preparedness observed thus far can be sustained over the long term. History would suggest a substantial decline of interest in disaster reform within

*a revision to the Insurrection Act seems to strengthen the Federal Government's power to direct the national response in certain catastrophic situations*

the next few years unless another catastrophic event occurs (out of sight, out of mind).

**Collecting and Sharing Information.** The tools and processes associated with collecting and sharing disaster-related information remain underdeveloped. Key stakeholders still operate in different domains. The Internet-based Homeland Security Information Network is intended as the primary network to coordinate incident management. But DOD joint task forces and combatant command headquarters are still geared toward classified networks for coordination, command, and control. The Homeland Data Sharing Program, designed to provide common information elements and data standardization, is incomplete, as is the unclassified Common Operating Picture for the Federal Government and states. Imagery is the only technical collection means with an established state/local dissemination policy.

**Matching Military Capabilities with Civilian Requirements.** The DSCA requests for assistance/request for forces process



1st Combat Camera Squadron (Michael E. Best)

lacks certain elements, such as a detailed standard operating procedure for handling RFA, a centralized mechanism for tracking of forces/resources from point of need to point of delivery, a clear structure for prioritizing simultaneous/competing needs among states and regions, and funding sources for forces to “lean forward” before a disaster occurs. Pre-scripted mission assignments may not be sufficient for certain time-critical capabilities, such as Incident Awareness and Assessment and aeromedical evacuation. Actions ensuring greater visibility of National Guard and Title 10 force deployments stop short of establishing a single DSCA force provider. Finally, dedicating a portion of DOD’s finite resources to domestic response missions remains an important concern given the military’s global commitments.

*Open-ended Disasters.* The Nation has not fully addressed catastrophic events that are open-ended. A pandemic, for example,

Command’s studies of the national response to Katrina have shown several mutually reinforcing approaches to closing the gap of pain. The dominant metric for most of these approaches is *timeliness*, not *quantity of resources*. Furthermore, response timeframes are measured in hours and days, not weeks. The keys to meeting local and state requirements for rapid external assistance (that is, Federal Government and DOD) are shared situational awareness and multi-jurisdiction collaboration.

The burden for ensuring effective disaster response falls primarily on local and state governments and civilian Federal agencies. With its global responsibilities and warfighting orientation, DOD should provide surge capacity, not the majority of initial resources for domestic response operations. That said, the uniformed Services (including the Coast Guard and National Guard as well as DOD) provide powerful and visible response capabilities. Their utility in domestic catastrophes is undeniable. Their performance, in coordination with other elements of the national response, must continue to be honed. For catastrophic incidents, however, completely closing the gap of pain may not be feasible. Efforts to manage public expectations and promote individual responsibility for all contingencies must continue. In time, the United States will likely face another disaster on the scale of Hurricane Katrina. **JFQ**

the President to approve a declaration request. See Federal Emergency Management Agency Fact Sheet, “Hurricane/Typhoon Pre-Landfall Policy,” June 16, 2006, available at <[www.fema.gov/media/fact\\_sheets/pre-landfall.shtml](http://www.fema.gov/media/fact_sheets/pre-landfall.shtml)>.

<sup>5</sup> In instances where the PFO has also been assigned the role of the FCO, deputy FCOs for the affected states will be designated to provide support to the PFO/FCO and facilitate incident management span of control. See DHS, *Notice of Change to the National Response Plan* (Washington, DC: DHS, March 25, 2006), 33–34.

<sup>6</sup> Assets that may be placed on 24-hour prepare-to-deploy-order status include helicopters; command, control, and communications support; patient movement capability; assessment teams; joint task force headquarters; and medical and logistical support elements.

<sup>7</sup> When it is impracticable for the joint task force headquarters to collocate with the JFO, the headquarters is obliged to connect virtually with, and assign liaisons to, the JFO. See *Notice of Change to the National Response Plan*, 28, 42.

<sup>8</sup> Sebastian Sprenger, “Pentagon Identifies Forces for Hurricane Response Operations,” *Inside the Pentagon*, August 31, 2006.

<sup>9</sup> Spencer S. Hsu, “Tons of Food Spoiled As FEMA Ran Out of Storage Space,” *The Washington Post*, April 13, 2007, A1, available at <[www.washingtonpost.com/wp-dyn/content/article/2007/04/12/AR2007041202411.html](http://www.washingtonpost.com/wp-dyn/content/article/2007/04/12/AR2007041202411.html)>; and “FEMA to Melt Ice Stored Since Katrina,” CBSNews.com, July 15, 2007, available at <[www.cbsnews.com/stories/2007/07/15/national/main3058982.shtml](http://www.cbsnews.com/stories/2007/07/15/national/main3058982.shtml)>.

<sup>10</sup> The DHS review concluded that officials at all levels were working “to strengthen plans and formalize mutual aid agreements.” But catastrophic disaster planning suffered from “outmoded planning processes, products, and tools.” Only 27 percent of the states and 10 percent of the cities were evaluated as adequately prepared to cope with a catastrophic event. See DHS, *Nationwide Plan Review, Phase 2 Report* (Washington, DC: DHS, June 16, 2006), xi–xii.

<sup>11</sup> Eric Lipton, “Despite Steps, Disaster Planning Still Shows Gaps,” *The New York Times*, August 26, 2006.

<sup>12</sup> National Defense Authorization Act for Fiscal Year 2007, 10 U.S.C. §§331–335, updated October 2006.

<sup>13</sup> For a detailed analysis of the political maneuverings over the revision to the Insurrection Act and their legal implications, see Emery Midet, “An Analysis of the 2006 Revision to Chapter 15 of Title 10 of the United States Code,” *Joint Center for Operational Analysis Journal*, September 2007.



**Homeland Security Secretary and FEMA administrator receive reports of FEMA readiness regions via videoconference**

poses a different kind of a disaster challenge because it is potentially less bounded in both time and geographic scope. While responses to most types of disasters focus on getting resources to the people who need them quickly, response requirements for a pandemic may affect the entire country and initially exceed national resources. In this case, early intervention would be a key tool in helping to stop a pandemic in its tracks. Most importantly, preparing the public is critical to slow the spread of disease and reduce the secondary and tertiary effects of a pandemic.

The traditional approach to disaster response has been to overwhelm the problem with additional resources. U.S. Joint Forces